

JOURNAL
OF THE
ASIATIC SOCIETY.

PART II.—PHYSICAL SCIENCE.

No. IV.—1871.

MONOGRAPH OF INDIAN CYPRINIDÆ, PT. III,—by Surgeon F. DAY.
(With plates XXII and XXIII.)

[Received 17th August, 1871.—Continued from p. 336.]

GENUS SCHIZOTHORAX, *Heckel*. Pl. xxii, f. 1, 2.

Racoma, sp. McClell.

Schizopyge, sp. Heckel.

Opistocheilus, pt. Bleeker.

Abdomen rounded. Snout conically rounded, and laterally somewhat compressed, with the mouth arched and antero-inferior, mandibles neither broad, flattened, nor with sharp margins, its edge sometimes having a thin, deciduous horny covering. Barbels four. Pharyngeal teeth pointed, hooked, 5, 3, 2/2, 3, 5. Dorsal fin rather short, with a strong, osseous, serrated ray, and arising opposite the ventrals; anal short. Scales very small, the vent and base of the anal fin in a sheath, covered by enlarged, tiled, scales. Lateral line passing to the centre of the base of the caudal fin.*

Geographical distribution. Mountain streams and rivers around the bases of the Himalayas, also in Cashmere, Nepaul, and Afghanistan.

* This horny covering is very liable to become detached and lost after death, it should be carefully investigated in fresh specimens.

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SYNOPSIS OF SPECIES.

1. *Schizothorax barbatus*, D. 4/8, A. 3/5, Cabul.
2. " *niger*, D. 4/8, A. 3/5, Cashmere.
3. " *intermedius*, D. 4/8, A. 3/5, Afghanistan.
4. " *Ritchianus*, D. 3—4/8, A. 2/5, Afghanistan.
5. " *nobilis*, D. 3/9, A: 8, Afghanistan and Nepaul.
6. " *planifrons*, D. 4/7, A. 2/5, Cashmere.
7. " *Hodgsonii*, D. 3/8, A. 2/5, L. 1. 155, Himalayas.
- * 8. " *labiatus*, D. 3/8, A. 7, Afghanistan.
- * 9. " *chrysochlorus*, D. 3/8, A. 8, Afghanistan.
- *10. " *gobioides*, D. 3/8, A. 6, Bamean river.
11. " *curvifrons*, D. 11, A. 8, L. 1. 100, Cashmere.
- *12. " *nasus*, D. 11, A. 8, Cashmere.
13. " *Hügelii*, D. 11, A. 8, L. 1. 190, Cashmere.
- *14. " *micropogon*, D. 11, A. 8, Cashmere.
- *15. " *Edeniana*, D. 3/8, A. 8, Afghanistan.
- *16. " *longipinnis*, D. 11, A. 8, Cashmere.
17. " *escocinus*, D. 3/8, A. 3/5, Cashmere and Afghanistan.
- *18. " *brevis*, D. 2/7, A. 7, Afghanistan.

Amongst the foregoing 18 species, it is very, or rather most, probable that several will eventually turn out to be synonyms.

1. SCHIZOTHORAX BARBATUS.

McClell., Cal. Journ. Nat. Hist. ii. 1842, p. 580; Günther Catal. vii. p. 168.

B. III. D. 4/8, P. 21, V. 11, A. 3/5, C. 21.

Length of head $1/5$, caudal $1/5$, height of body $1/5$ of the total length.

Eyes. Diameter $1/4$ of length of head, $1\frac{1}{2}$ diameters from end of snout.

Interorbital space very slightly convex. Mouth inferior, semi-oval; cleft nearly horizontal, about equalling that of the gape; upper jaw slightly the longest; inside of lower jaw said to be covered with a deciduous cartilaginous layer (the specimens in the British Museum which I saw, had their mouths firmly closed). Lower labial fold entire, and having a free margin in its entire extent. Barbels as long as the orbit.

Fins. Dorsal commences midway between the anterior margin of the orbit and the base of the caudal; its osseous ray strong, as

long as the head, and posteriorly with closely set denticulations; anal when laid flat does not extend so far as the base of the caudal.

Scales—minute, anal row but little developed.

Colours—silvery.

Hab. Cabul river at Jellalabad, attaining at least 11 inches in length.

2. SCHIZOTHORAX NIGER.

Heckel, Fische aus Kaschmir, p. 29, t. 5; *Cuv. and Val. xvi, p. 217; Günther, Catal. vii. p. 164.

Alghad, Cash.

B. III. D. 4/8, P. 19, V. 10, A. 3/5, C. 19.

Length of head about $1/5$ ($4/21$), of caudal $1/6$, height of body $1/5$ of the total length.

Eyes. Diameter $2/9$ of length of head, very little more than 1 diameter from end of snout, $1\frac{1}{2}$ diameters apart.

Mouth horse-shoe shaped, inferior, the upper jaw somewhat projecting, cleft nearly horizontal, but not so long as the gape. Margin of the lower jaw cutting, its inside covered with a horny cartilaginous layer. Lower labial fold interrupted. Barbels shorter than the eye.

Fins. Dorsal arises midway between the anterior margin of the orbit and the base of the caudal, also a little before the root of the ventral; its osseous ray is moderately strong, as long as the head without the snout, and having posteriorly coarse and rather closely set denticulations. Anal fin when laid flat not reaching the base of the caudal which latter is forked.

Scales—minute, anal row but little developed, the largest being one-third as broad as the orbit.

Hab. Cashmere, attaining at least seven inches in length.

3. SCHIZOTHORAX INTERMEDIUS.

McClell., Cal. Journ. Nat Hist. ii, 1842, p. 579; Günther, Catal. vii p. 165.

B. III. D. 4/8, P. 17, V. 11, A. 3/5, C. 19.

Length of head $1/5$, of caudal $1/5$, height of body about $1/5$ of the total length.

Eyes. Diameter $1/6$ of length of head, nearly 2 diameters from end of snout and apart.

Interorbital space flat, mouth inferior, crescentic, with the cleft nearly horizontal, and the gape one half greater in extent than the cleft. Snout overhanging the upper jaw which projects beyond the lower, the edge of the latter rather sharp, and its inside covered with a deciduous cartilaginous layer. Lower labial fold interrupted in the middle. Barbels about as long as the eye.

Fins. Dorsal commences midway between the end of the snout and the base of the caudal, and slightly in advance of the ventrals; its osseous ray is of moderate strength, rather more than half as long as the head and closely serrated posteriorly. The anal when laid flat reaches the root of the caudal.

Scales—minute, anal row moderately developed, the largest being almost half as broad as the orbit.

Hab. Afghanistan, attaining at least 11 inches in length.

4. SCHIZOTHORAX RITCHIANUS.

McClell., Cal. Journ. Nat. Hist. ii, 1842, p. 580; Günther, Catal. vii, p. 168.

B. III. D. $\frac{3-4}{8}$, P. 19, V. 11, A. $2/5$, C. 21.

Length of head $2/9$, of caudal $2/9$, height of body $1/5$ of the total length.

Eyes. Diameter $1/5$ of length of head, $1\frac{3}{4}$ from end of snout, $1\frac{1}{2}$ diameters apart.

Mouth inferior, semi-oval, the jaws equal in front. Lower labial fold entire, and having a free margin in its entire extent, which, however, is produced into a short median lobe. Interorbital space nearly flat. Barbels nearly as long as the eye.

Fins. Dorsal commences midway between the anterior margin of the orbit and the base of the caudal; its osseous ray is serrated posteriorly, rather feeble, and the stiff portion as long as the head without the snout; anal when laid flat does not quite reach the base of the caudal, which latter is lunate.

Scales—minute, anal row moderately developed.

Colours—silvery and spotted with black.

Hab. Afghanistan, attaining at least nine inches in length.

5. SCHIZOTHORAX NOBILIS, pl. xxii, fig. 1, 2.

Racoma nobilis, *McClelland, Cal, J. N. H., vol. ii, p. 577, pl. xv, fig. 4.

B. III. D. $\frac{3}{9}$, P. 19, V. 11, A. $\frac{3}{5}$, C. 19.

Length of head $\frac{1}{4}$, of caudal $\frac{1}{5}$, height of body $\frac{1}{5}$ of the total length.

Eyes. Diameter $\frac{1}{9}$ of length of head, 3 diameters from end of snout, $2\frac{1}{2}$ diameters apart.

Head elongated and compressed, upper jaw slightly the longest. Opercle rounded posteriorly. Cleft of mouth nearly horizontal. In a fine specimen 15 inches long, from Nepal, now in the Calcutta Museum, there is no horny envelope to the lower jaw, but short longitudinal bands of horny substance are present inside both jaws; these of course may have been attached to a horny covering which has become lost. Rostral barbels as long as one and a half diameters of the orbit, and slightly longer than the maxillary ones. Lower labial fold interrupted in the middle.

Fins. Dorsal commences midway between the eye and the base of the caudal; its spine is strong, not quite half as long as the head, and posteriorly rather feebly serrated. Anal when laid flat, does not reach the caudal, which latter is deeply forked.

Scales in tiled row moderately developed, and two thirds as long as the orbit.

The entire length of the intestinal canal, according to McClelland, is only one and two two-thirds the length of the body.

Colours—silvery, the whole body and fins covered with numerous small spots.

Hab. Afghanistan and Nepal, attaining 18 inches in length.

6. SCHIZOTHORAX PLANIFRONS.

Heckel, Fische aus Kashmir, p. 44, t. 8, fig. 2; *Cuv. & Val. xvi, p. 221; Günther, Catal. vii, p. 163.

B. III. D. $\frac{4}{7}$, P. 21, V. 11, A. $\frac{2}{5}$, C. 21.

Length of head $\frac{2}{9}$, of caudal $\frac{2}{11}$, height of body $\frac{2}{9}$ of the total length.

Eyes. Diameter $\frac{1}{5}$ of length of head, $1\frac{1}{2}$ diameters from end of snout and apart.

Interorbital space flat, the nuchal region somewhat prominent. Mouth anterior, cleft descending obliquely downwards, the jaws equal in front, the edge of the mandible not cutting, and having an internal covering of thin, deciduous, cartilage; the lower labial fold interrupted in the middle, where there are a pair of large open glands. Barbels about as long as the eye.

Fins. The dorsal commences midway between the posterior extremity of the orbit and the base of the caudal, its osseous ray is moderately strong, two-thirds as long as the head, and coarsely serrated posteriorly. Anal nearly reaching the caudal when laid backwards, whilst the latter fin is truncated.

Scales—minute, except the anal row which is moderately developed, the largest being half as broad as the orbit.

Colours—silvery.

Hab. Cashmere, attaining at least 14 inches in length.

7. SCHIZOTHORAX HODGSONII.

Günther, *Catal.* vii, p. 167.

Oreinus Hodgsonii, Günther, *Proc. Zool. Soc.* 1861, p. 224.

Dinnawah, Hind. (N. W. P.)

B. III. D. $\frac{3}{8}$, P. 19, V. 11, A. $\frac{2}{5}$, C. 19, L. 1. 155.

Length of the head and caudal each, about $\frac{1}{5}$ ($\frac{4}{21}$), height of body $\frac{1}{6}$ of the total length.

Eyes. Diameter $\frac{1}{4}$ of length of head, $1\frac{1}{2}$ diameters from end of snout.

Interorbital space slightly convex, snout pointed. Mouth inferior, breadth of gape equalling the depth of the cleft, the upper jaw projecting and having a broad fleshy lip with a free superior margin. Edge of lower jaw slightly compressed, having internally a thin deciduous cartilaginous layer; lower labial fold broad, free in its whole circumference, and having a small median lobe. Barbels about as long as the eye.

Fins. Dorsal commences in advance of the ventrals, and midway between the end of the snout and the root of the caudal, its osseous ray is nearly as long as the head, strong, and armed with coarse denticulations. Anal when laid flat nearly reaches the base of the caudal, which last is deeply forked.

Scales in tiled row but little developed, the largest not being quite half as broad as the orbit.

Colours—uniform silvery, sometimes with a few fine spots.

Hab. Himalayas, attaining at least twenty inches in length. Also at Hurdwar where the Ganges leaves the hills.

8. SCHIZOTHORAX LABIATUS.

Racoma labiatus, McClell., C. J. N. H., vol. ii, p. 578, pl. xv, fig. 1.

B. III. D. $\frac{4}{8}$, P. 10, V. 10, A. $\frac{2}{5}$, C. 21.

Length of head greater than the height of body, and $\frac{1}{4}$ of the total excluding the caudal fin.

Eyes. Diameter $\frac{2}{15}$ of length of head, 3 diameters from end of snout.

Head much compressed, interorbital space slightly convex, upper jaw the longest. Labial fold entire, and prolonged into a lobe in the centre. Maxillary barbels one and a half times as long as the orbit. McClelland observes they end in trident points.

Fins. Dorsal commences midway between the anterior margin of the orbit and the base of the caudal fin. Anal when laid flat almost reaches the base of the caudal.

Scales in tiled row two-thirds as broad as the orbit.

Colours. Uniform silvery.

Hab. Peshut, Koonar river near Jellalabad.

9.* SCHIZOTHORAX CHRYSOCHLORUS.

Racoma chrysochlora,* McClell., Cal. J. N. H., vol. ii, p. 577, pl. xv, fig. 12.

B. III. D. $\frac{3}{8}$, P. 19, V. 10, A. 8.

“Mouth directed forwards, intermaxillaries protractile, without spots, scales small, raised on the lateral line, vertical anal scales large, colour brownish yellow. Operculum square behind. Intestines convoluted in a conical form in the anterior part of the abdomen, and equal to six lengths of the body.”

Hab. Lolpore, Cabul river, attaining 10 inches in length.

10. SCHIZOTHORAX GOBIOIDES.

Racoma gobioides, McClell. C. J. N. H. ii, p. 576, pl. 15, f. 3.

B. III. D. $\frac{3}{7\frac{1}{8}}$, P. 19, V. 9, A. $\frac{2}{5}$, C. 19.

Length of head $\frac{1}{5}$, of caudal $\frac{1}{6}$, height of body rather above $\frac{1}{5}$ of the total length.

Eyes. Diameter $\frac{1}{5}$ of length of head, $1\frac{3}{4}$ diameters from end of snout, 2 diameters apart.

Snout rounded and but little prominent, the mouth opens horizontally, and the intermaxillary has but little motion. A thin deciduous horny covering exists inside the lower jaw, and the lower labial fold is interrupted in the middle. Barbels longer than the orbit.

Fins. The dorsal arises somewhat in advance of the ventrals, midway between the eye and the commencement of the caudal, its osseous ray is moderately strong and serrated, and as long as the head without the snout; the anal fin laid flat reaches the base of the caudal.

Scales. The tiled row but little developed, the scales composing it are about thrice the depth of the ordinary scales on the other parts of the body.

Colour. Yellowish brown, darker on the back, and becoming yellowish white below. Very fine black points on the scales.

Hab. Barmean river, also Nepaul, attaining at least $8\frac{1}{2}$ inches in length.

11. SCHIZOTHORAX CURVIFRONS.

Heckel, Fische aus Kasch. p. 25, t. 3; *Cuv. and Val. xvii, p. 216; *Günther, Catal. vii, p. 164.

Sottir, Cash.

B. III. D. $\frac{3}{8}$, P. 19, V. 11, A. $\frac{2}{5}$, C. 19, L. 1, 100.

Length of head $\frac{1}{5}$, height of body rather above $\frac{1}{5}$ of the total length.

Eyes. Diameter $\frac{1}{5}$ of length of head, $1\frac{1}{4}$ diameters from end of snout.

Interorbital space nearly flat. Mouth small, crescentic, a little wider than deep, cleft slightly oblique, upper jaw the longest. Lower jaw with a sharp edge, and a very thin horny covering. Lower labial fold interrupted. Barbels as long as the eye.

Fins. Dorsal arises nearly midway between the anterior margin of the orbit and the base of the caudal, its osseous serrated ray is of moderate strength, as long as the head without the snout; the anal when laid backwards does not quite reach the base of the caudal.

Scales—minute, those along the lateral line largest; anal row but little developed.

Colour—silvery.

Hab. Cashmere.

12. *SCHIZOTHORAX NASUS.

Heckel, *Fische aus Kasch.* p. 33, f. 6; *Cuv. and Val., xvi, p. 218; Günther, *Catal.* vii, p. 166.

Dongu, Cash.

B. III. D. 11, A. 8.

Length of head $\frac{2}{9}$, height of body a little above $\frac{2}{9}$ of the total length.

Eyes. Diameter $\frac{1}{6}$ of the length of head, more than 1 diameter from end of snout.

Mouth inferior, crescentic, cleft nearly horizontal, and not so long as the gape, upper jaw somewhat compressed, and projecting beyond the lower, margin of mandibles sharp, with the lower labial fold interrupted.

Fins. Dorsal arises midway between the end of the snout, and the root of the caudal, its osseous ray is of moderate strength, and armed posteriorly with some rather widely set denticulations. Anal, when laid flat, not extending to the root of the caudal.

Scales—minute; anal row moderately developed, the largest scales in it being half as broad as the orbit.

Hab. Cashmere; attaining at least 11 inches in length.

13. SCHIZOTHORAX HÜGELII.

Heckel, *Fische aus Kaschmir*, p. 36, t. 7; *Cuv. and Val., xvi, p. 219; *Günther, *Catal.* vii, p. 164.

Grot, Cash.

B. III. D. $\frac{3}{8}$, P. 21, V. 10, A. $\frac{2}{5}$, L. 1. ca. 190.

Length of head $\frac{1}{5}$, of caudal $\frac{1}{5}$, height of body $\frac{2}{9}$ of the total length without the caudal fin.

Eyes. Diameter $\frac{1}{6}$ of length of head, $2\frac{1}{2}$ diameters from end of snout and apart.

Gape of mouth horse-shoe shaped, as broad as deep, cleft oblique, upper jaw the longest. Edge of lower jaw with a thin but sharp

horny covering. Lower labial fold unⁿinterrupted, but with the central portion transverse. Barbels rather longer than the eye.

Fins. Dorsal commences midway between the eye and the root of the caudal, its osseous ray is strong and but slightly serrated, the stiff portion being as long as the head without the snout, anal, when laid flat, reaches the base of caudal, the latter fin forked in its last half and having pointed lobes.

Scales in anal row very large, the largest broader than the eye.

Colours. Silvery, upper parts with blackish dots.

Hab. Cashmere and Nipál, attaining at least 16 inches in length.

14. *SCHIZOTHORAX MICROPOGON.

Heckel, *Fische aus Kaschmir*, p. 41, t. 8, fig. 1; *Cuv. & Val., xvi, p. 220; Günther, *Catal.* vii, p. 163.

Ramghurdi, Cash.

B. III. D. 11, A. 8.

Length of head $1/4$, height of body $1/5$ of the total without the caudal fin.

Eyes. Diameter $2/9$ of length of head.

Opening of mouth small, crescentic, with an oblique cleft, and the jaws anteriorly of equal length. Margin of lower jaw rounded, and said to be without any horny covering. Lower labial fold interrupted. Barbels minute.

Fins. Dorsal arises nearer the root of the caudal than the end of the snout, its osseous ray strong and coarsely serrated. Anal, when laid flat, not reaching the caudal.

Scales in anal row but little developed, the other scales minute.

Hab. Cashmere; attaining 6 inches in length.

15. *SCHIZOTHORAX EDENIANA.

Schizothorax Edeniana, McClell., *Cal. J. N. H.* ii, p. 579.

B. III. D. $3/8$, P. 20, V. 10, A. 8, C. 19.

Reflected margin of lower lip entire, lips thick, round, and soft, snout depressed. Lower jaw broad at the base, but narrow at the apex. Posterior margin of the opercle rounded.

Fins. Dorsal spine slender, soft, but harder at the base, where it is slightly serrated.

Scales. Rather above the ordinary size in this group.

Intestinal canal is $3\frac{1}{2}$ lengths of the body.

Hab. Cabul river at Koti-i-Ashruf, Mydan valley, and Sir-i-Chusmah.

16. *SCHIZOTHORAX LONGIPINNIS.

Heckel, *Fische aus Kasch.* p. 27, t. 4; *Cuv. & Val., xvi, p. 216; *Günther *Catal.* vii, p. 166.

Dapeghat, Cash.

B. III. D. 11, A. 8.

Height of body equals the length of the head, which is $\frac{2}{9}$ of the total length, excluding the caudal fin.

Eyes. Diameter $\frac{1}{5}$ of length of head, rather above 1 diameter from end of snout.

Mouth crescentic, inferior, the cleft rather oblique but not equalling the gape, upper jaw slightly the longest. Margin of lower jaw rather sharp. Lower labial fold interrupted. Barbels shorter than the eye.

Fins. Dorsal commences a little nearer to the root of the caudal than the end of the snout, its osseous ray is moderately strong, and closely denticulated posteriorly. Anal, when laid flat, reaching the root of the caudal.

Scales—minute; anal row not much developed, the largest scales in it being less than half as broad as the orbit.

Hab. Cashmere, attaining at least ten inches in length.

17. SCHIZOTHORAX ESOCINUS.

Heckel, *Fische aus Kasch.* p. 48, t. 9; McClell., *Calc. Journ. Nat. Hist.* ii, 1842, p. 579; *Cuv. and Val., xvi, p. 221; Günther, *Catal.* vii, p. 166.

Cheroo, Cash.

B. III. D. $\frac{3}{8}$, P. 18, V. 11, A. $\frac{3}{5}$, C. 19.

Length of head $\frac{1}{4}$, height of body $\frac{1}{4}$ of total length exclusive of the caudal fin.

Eyes. Diameter $\frac{1}{5}$ of length of head, $1\frac{1}{2}$ diameters from end of snout.

Cleft of mouth slightly oblique, the upper jaw a little longer than the lower. Margin of the lower jaw smooth and without

any cartilaginous membrane. Length of cleft of mouth equals that of the gape. Interorbital space flat. Lower labial fold interrupted. Barbels longer than the eye.

Fins. Dorsal commences between the anterior extremity of the snout, and the base of the caudal, its osseous ray is stout, nearly as long as the head, and posteriorly with strong, closely set denticulations. Anal, when laid flat reaches base of caudal, which latter is forked.

Scales—minute, the anal row moderately developed, the largest scales in it being half as broad as the orbit.

Colours. Body with numerous blackish dots.

Hab. Cashmere and Afghanistan, attaining at least ten inches in length.

18. *SCHIZOTHORAX BREVIS.

Racoma brevis, McClelland, Cal. J. N. H. ii, p. 578.

B. III. D. 2/7, P. 20, V. 11, A. 7, C. 19.

Head short and compressed. The depth of the body nearly equal to one third of its length.

Lips covered with a thick fleshy membrane which forms a loose appendage to the lower jaw.

Fins—small, the fin membranes, strong, the rays slender, and the dorsal spine slender and soft.

Hab. Helmund river.

Genus. OREINUS, *McClell.* Pl. xxii, f. 3, 4.

SCHIZOTHORAX, Sect. A, *Heckel.*

SCHIZOPYGE, sp. *Heckel.*

Abdomen rounded. Snout rounded, mouth inferior and transverse, mandibles short, broad, and flat, loosely joined together at the symphysis, margin of the lower jaw having a thick horny covering, thickest internally, and a thick fringed lower lip with a free posterior edge, forming a sucker (). Barbels four. Pharyngeal teeth pointed, hooked, 5, 3, 2/2, 3, 5. Dorsal fin rather short, with a strong, osseous, serrated*

* The fact, that the large lower lip in *Orcinus* formed a sucker with its free posterior edge, has only been ascertained by me since the commencement of this Monograph was printed, and this will account for the genus being placed here, instead of following *Discognathus*.

ray, and arising opposite the ventrals; anal short. Scales very small, the vent and base of the anal fin in a sheath covered by enlarged tiled scales. Lateral line passing to the centre of the base of the caudal fin.

Geographical distribution. Mountain streams of Himalayas, Cashmere, Nipál and Afghanistan.

Synopsis of species.

- *1. *Oreinus progastus*, D. 12, A. 7, Assam.
- 2. „ *sinuatus*, D. 4/7, A. 3/5. Anal scales about 1/2 as large as orbit. Black spots on body. *Cashmere, Punjáb, Afghanistan.*
- 3. „ *plagiostomus*, D. 3/8, A. 3/5. Anal scales about as large as orbit. Colouration uniform *Cashmere and Afghanistan.*
- 4. „ *Richardsonii*, D. 3/8, A. 3/5, L. 1. 140. Anal scales nearly as large as orbit. Colouration uniform. *Nipál.*

Geographical distribution. Throughout the Continent of India Ceylon and Burma.

1. *OREINUS PROGASTUS.

McClelland, Ind. Cyp. pp. 274, 343, pl. 40, f. 4; *Cuv. and Val., xvi, p. 225.

Adooe, Assam.

B. III. D. 12, P. 13, V. 10, A. 7, C. 19.

This species is “known by its lengthened and fleshy snout, small mouth, and the suborbital bones form a narrow band below and behind the eyes.”

Fins. “Dorsal anterior to the middle of the body, with a strong ensiform spine, toothed behind.”

“Abdomen abruptly enlarged beneath the pectorals.”

Hab. Assam along its borders, where the stream is too rapid to permit of navigation. It attains from 6 to 8lbs. in weight.

This fish “is said by the natives of Assam to occasion swimming of the head and temporary loss of reason for several days, without any particular derangement of the stomach.” It “tends rapidly to decay after death, and in the abdominal cavity a copious oily secretion is found, which is probably the cause of its bad effects.”

2. OREINUS SINUATUS, pl. xxii, fig. 3, 4.

Schizothorax sinuatus, Heckel, Fische aus Kaschmir, p. 21, t. 2.

Oreinus maculatus, McClell., Ind. Cyp. pp. 274, 345, pl. lvii, fig. 6, and Cal. J. N. H. ii, p. 580.

„ *guttatus*, McClell., Ind. Cyp. pp. 273, 344, pl. xxxix, fig. 1; *Cuv. and Val., xvi, p. 266.

„ *sinuatus*, Günther, Catal. vii, p. 161.

Gool-goolli and *Saul*, Punj.; *Jis*, Cash.

B. III. D. $\frac{3-4}{7-8}$, P. 17, V. 10, A. $\frac{2-3}{5}$, C. 19, L. 1. 105, Vert. $\frac{24}{23}$.

Length of head $\frac{2}{11}$, of caudal $\frac{2}{11}$, height of body $\frac{2}{11}$ of the total length.

Eyes. Diameter $\frac{2}{9}$ to $\frac{1}{6}$ of length of head, 2 to $2\frac{1}{2}$ diameters from end of snout, $2\frac{1}{4}$ diameters apart.

Interorbital space broad and rather convex; snout rounded, with a very slight appearance of pores. Mouth inferior, transverse; lower lip well developed, rugose, entire, having a free posterior edge, and forming an adhesive sucker.

Inner side of lower lip covered with cartilage, which is extended on to its inferior surface, where however, it is not so horny. Barbels of about equal length and nearly as long as the eye. Pre-opercle with an emarginate posterior border.

Teeth,—pharyngeal, 5, 3, $\frac{2}{2}$, 3, 5, crooked, pointed.

Fins. Dorsal commences opposite the ventrals, and midway or slightly nearer to the snout than it does to the base of the caudal fin, its spine is rather strong, moderately serrated and as long as the head without the snout, the fin is hardly so high as the body below it. Pectoral four-fifths as long as the head, and scarcely extending above halfway to the ventrals, which last reach two-thirds of the distance to the anal. The anal has a narrow base and its length slightly varies, reaching, when laid flat, the whole or only three-fourths of the distance to the base of the caudal, which is lobed in its posterior half. Free portion of tail slightly longer than deep.

Scales—smallest below the lateral line; tiled row to vent minute, each scale in it being scarcely one-third the diameter of the orbit.

Viscera. The diameter of the posterior portion of the air bladder

is small. The lobes of the liver are elongated, extending to opposite the anal fin, and having several lateral but parallel prolongations. In May (at Chumba) the ova of these fish inhabiting the main stream, were almost fully developed, being numerous and of a large size, whilst there were a considerable number of fry in the side streams of the Ravi.

Colours. Greyish, becoming white below, pre-opercle dashed with golden; lower fins tinged red. After death two or three rows of dark grey blotches appear above the lateral line. Some have scattered black and occasionally red spots, and these have been termed *Trout*.

Hab. Afghanistan, Himalayas and in all the rivers of the Punjáb. It adheres to rocks by means of its sucker and is thus enabled to reside in mountain rapids. It is also found in Cashmere, Darjeeling and apparently in Bútan. It attains 2 feet in length, is pretty good eating but bony; it is too rich for some people, but does not affect those used to it.

I have received some specimens from near Darjeeling, through Dr. Stoliczka; these I found to agree very well with McClelland's figure of *O. guttatus*, except in one or two less number of dorsal rays. Having since examined numerous specimens from the Ravi, its tributaries and other Punjáb rivers, I find them identical with the Darjeeling species.

3. OREINUS PLAGIOSTOMUS.

Schizothorax plagiostomus, Heckel, Fische aus Caschmir, p. 16, t. 1; *Cuv., and Val., xvi, p. 213.

Oreinus plagiostomus, McClelland, Cal. Journ. Nat. Hist. ii, 1842, pp. 570, 581; Günther, Catal. vii, p. 160.

B. III. D. 3/8, P. 17, V. 11, A. 3/5, C. 19.

Length of head 2/9, of caudal 2/9, height of body 1/4 of the total length.

Eyes. Diameter 1/6 of length of head, 2 diameters from end of snout.

Snout broad, interorbital space nearly flat; mouth transverse, inferior, lower lip with a free posterior margin, and having a considerable number of glands on its surface.

Fins. Dorsal osseous ray of moderate strength, its stiff portion as long as the head without the snout, its serrature being rather feeble; the fin commences somewhat in advance of the ventrals, and midway between the end of the snout, and the root of the caudal; anal narrow but its rays rather long, the scales along its base well developed, the largest being nearly the size of the orbit.

Colours,—uniform silvery.

Hab. Afghanistan and Cashmere. Heckel's specimen, by the figure, appears to have had pores on the snout and a shorter anal.

O. Griffithii, McClelland, l. c. p. 581, is said to differ but little from the above, its intestines are six times the length of the body, its *habitat* is Afghanistan, Koonur river, Pushut.

4. OREINUS RICHARDSONII.

Cyprinus Richardsonii, Gray and Hard., Ill. Ind. Zool.

Gonorhynchus petrophilus, McClell., Journal As. Soc. of Bengal, iv, p. 39, c. fig.; *Cuv. and Val., xvi, p. 466.

Oreinus maculatus, *Cuv. and Val., xvi, p. 228; Günther, Proc. Zool. Soc. 1861, p. 224.

Oreinus Richardsonii, McClell., Ind. Cyp. pp. 273, 345; *Cuv. and Val. xvi. p. 227; Günther, Catal. vii, p. 162.

Asla, Nipál.

B. III. D. $\frac{3}{8}$, P. 15, V. 10, A. $\frac{3}{5}$, C. 19, L. l. ca. 140.

Length of head $\frac{1}{7}$, of caudal $\frac{2}{11}$, height of body $\frac{2}{11}$ of the total length.

Eyes. Diameter from $\frac{2}{9}$ (in young) to $\frac{1}{6}$ of length of head, 2 diameters from end of snout.

Interorbital space slightly convex, and broad. Mouth broad, margin of lower lip straight. Barbels small.

Fins. Osseous dorsal ray strong, its stiff portion being as long as the head without the snout, it commences midway between the end of the snout and the root of the caudal, and slightly in advance of the ventrals. Anal rays long, the scales on the sheath nearly as large as the orbits.

Colour,—uniform silvery.

Hab. Nipál specimens 18 inches long exist in the British Museum.

Genus, SCHIZOPYGOPSIS, *Steind.* Pl. xxii, fig. 5, (from Steind.)

Abdomen rounded. Snout obtusely conical. Mouth transverse, inferior, with a slight cleft; mandible with a sharp anterior edge, having a horny covering, and the upper lip continuous with a short lateral one. Barbels absent. Pharyngeal teeth compressed, 4 or 3, 3/3, 3 or 4. Dorsal fin short, with a serrated ray, and situated nearly opposite to the ventrals; anal short. Scales small, few, and only present in the scapular region. A scaled sheath to vent and anal fin. Lateral line continued to the centre of the base of the caudal.

Geographical distribution.—Tibet.

Only one species known.

1. *Schizopygopsis Stoliczkae*, D. 4/7, A 2/5. Tibet.

1. SCHIZOPYGOPSIS STOLICZKÆ.

Steind., Verh. Zool.-bot. Ges. Wien, 1866, p. 785; Günther, Catal. vii, p. 170.

B. III. D. 4/7, P. 13, V. 9, A. 2/5, C. 19.

Fins. Dorsal arises midway between the end of the snout and the root of the caudal, its last half being posterior to the ventrals.

Colours. Olive, with irregular blackish specks.

Hab. Stream near the monastery of Hanlé, Eastern Ladak, at about 15,200 feet elevation, where it was obtained by Dr. Stoliczka.

Genus, DIPTYCHUS, Stein. Pl. xxiii, fig. 1, 2.

Abdomen rounded; snout obtuse; mouth inferior, transverse, curved; lower jaw sharp, with an internal horny covering; lips continuous and having an uninterrupted labial fold across the mandible. Two maxillary barbels. Gill opening narrow. Pharyngeal teeth compressed 4, 3/3, 4. Dorsal fin without osseous ray, commencing opposite the ventrals; anal short; caudal forked. Scales small, only on the sides of the body and tail, also a scaly sheath to the vent and base of the anal fin. Lateral line continued to the centre of the base of the caudal.

Geographical distribution.—Tibet and Nipál.

Only one species known.

1. *Diptychus maculatus*, D. 3/8, A. 2/5. Tibet and Nipál.

1. DIPTYCHUS MACULATUS. Pl. xxiii, fig. 1, 2.

Steind., Verh. Zool.-bot. Ges. Wien., 1866, p. 788, t. 13, fig. 5; Günther, Catal. vii, p. 171.

B. III. D. $\frac{3}{8}$, P. 15, V. 9, A. $\frac{2}{5}$, C. 19.

Length of head $\frac{1}{5}$, of caudal $\frac{2}{9}$, height of body $\frac{2}{9}$ of the total length.

Eyes. Diameter $\frac{2}{9}$ of length of head, $1\frac{1}{3}$ diameters from end of snout, $1\frac{1}{2}$ apart.

Barbels scarcely as long as the eye.

Fins. Dorsal anterior to the ventral, its last ray being above it, whilst it commences slightly nearer snout than root of caudal.

Colours,—bluish, lightest inferiorly, indistinctly blotched and spotted, dorsal and caudal fins also spotted. Some specimens have longitudinal streaks.

Hab. Near Lei in Ladak, about 12,000 feet above the sea, also near Puga and Khorzok in Rupshu, at 14,000 to 15,500 feet, where it was obtained by Dr. Stoliczka; Nipál. It attains 5 or 6 inches in length.

*Genus, PTYCHOBARBUS, *Steind.* Pl. xxiii, f. 3, (from Steind.)

Abdomen rounded, snout conical, mouth arched, inferior. Two maxillary barbels. Pharyngeal teeth compressed 4, $\frac{3}{3}$, 4. A deep groove exists along the back, from the dorsal to the caudal fin. Dorsal fin without osseous ray, situated opposite the ventrals; anal short. Scales small, covering the body, and forming a sheath at the base of the vent and anal fin. Lateral line continued to the centre of the base of the caudal.

Geographical distribution.—Tibet.

Only one species known.

1.* *Ptychobarbus conirostris*, D. 11, A. 8. Tibet.

1.* PTYCHOBARBUS CONIROSTRIS, Pl. xxiii, f. 3, (from Steind.)

Steind., Verh. Zool.-bot. Ges. Wien. 1866, p. 789, t. 17, f. 4; *Günther, Catal. vii, p. 169.

B. III. D. 11, V. 10, A. 8, L. 1. 100.

Length of head about $\frac{1}{4}$ ($\frac{6}{25}$), height of body $\frac{1}{6}$ of the total length.

Eyes. Diameter $\frac{1}{4}$ to $\frac{1}{5}$ of length of head, $1\frac{1}{2}$ diameters from end of snout.

Maxillary barbels as long as the orbit.

Fins. Dorsal commencing nearer end of snout than root of the caudal, its anterior half being before the root of the ventrals.

Colours. Body and fins with many minute and irregularly disposed blackish spots.

Hab. Stream near Hanlé Monastery in Eastern Ladak, Tibet, where (at about 15,200 feet) it was obtained by Dr. Stoliczka.

b. Dorsal fin commencing very distinctly posterior to the ventrals, but not extending to above the anal, which last is short or of moderate length (5 to 10 branched rays).

Genus *NURIA*, *Cuv. and Val.* Pl. xxiii, f. 6.

ESOMUS Swainson.

Abdomen rounded. Pseudobranchiæ present, mouth narrow, directed obliquely upwards, suborbitals broad. Barbels four, the rostral shorter than the maxillary pair; pharyngeal teeth crooked, pointed, 5/5. Dorsal fin without osseous ray, and a few branched ones, it is inserted posterior to the ventral but not to over the anal, the latter having but few or a moderate number of branched rays; scales of moderate size. Lateral line, when present, passing to the lower half of the base of the caudal fin. Gill rakers short.

Geographical distribution. Continent of India, Ceylon and Burma.

Synopsis of species.

1. *Nuria albolineata*, D. 2/7, A. 2/11, L. 1. 31. Burma.
2. *Nuria danrica*, D. 2/6, A. 3/5, L. 1. 30-34. Lateral line present. A black lateral band. *India, Ceylon and Burma.*
3. *Nuria Malabarica*, D. 2/7, A. 2/5, L. r. 32. Lateral line absent. No black lateral band. *India, Burma, and Nicobars.*

1. *NURIA ALBOLINEATA.*

Blyth, J. A. S. of B. 1860, p. 163; Day. Proc. Zool. Soc. 1869, p. 558.

B. III. D. 2/7, P. 11, V. 7, A. 2/11, C. 17, L. 1. 31.

Length of head 2/9, of caudal 1/5, height of body 2/7 of total length. *Eyes* 3/4 of a diameter from end of snout. Maxillary barbels reach the ventral fin. *Lateral line* ceases above ventral fin. *Colours*; a silvery band along the side. *Habitat.* Moulmein.

2. *NURIA DANRICA.* Pl. xxiii, f. 6.

Cyprinus danrica, sutiha et jogia, Ham. Buch., Fish. Ganges, pp. 325, 327, 390, 391. pl. 16, f. 88; * *Cuv. and Val.*, xvi, pp. 404, 405, 408.

Perilampus recurvirostris, McClell., Ind. Cyp. pp. 290, 398, pl. 46, f. 2, (from H. B.'s. MS.)

„ *macrourus*, et *thermophilus*, McClell., l. c. pp. 291, 398, 399, pl. 46, f. 3.

Nuria thermoicos, et *thermophilus*, Cuv. and Val., xvi, pp. 238, 240, p. 472.

Leuciscus barbatus, Jerdon, M. J. L. and S. 1849, p. 322.

Nuria danrica, Bleeker, Verh. Bat. Gen. xxv. Beng. and Hind. p. 130; Günther, Catal. vii, p. 200; Day, Proc. Zool. Soc. 1869, p. 558.

„ *alta*, Blyth, J. A. S. of B. 1860, p. 162.

Esomus danrica, Bleeker, Atl. Ich. Cypr. p. 32, (No description.)

„ *thermoicos*, Kner, Novara Fische, p. 363.

„ *Maderaspatensis*, Day, Proc. Zool. Soc. 1867, p. 300.

Danrica and *Jongja*, Beng.; *Kurriah dahwiee*, Hind., *Soomarah*, Hind., (N. W. P.)

B. III. D. 2/6, P. 15, V. 9, A. 3/5, L. l. 30-34, L. tr. 5-6/3.

Length of head 2/11, of caudal 1/5, height of body 1/4 of the total length.

Eyes. Diameter 2/7 of length of head, 1 diameter from end of snout and apart.

Rostral barbels not so long as the head, the maxillary ones extend to the base of the ventral or even to that of the caudal.

Fins. Pectoral varies with age, being generally proportionately longer in the immature.

Lateral line—present, entire.

Colours. A broad black lateral band, sometimes absent.

Hab. India, Ceylon and Burma. Dr. Cumberland found it in a hot stream of 112° Fahr. at Pooree; it attains 5-inches in length.

3. NURIA MALABARICA.

Esomus Malabaricus, Day, Proc. Zool. Soc., 1867, p. 299; 1869, p. 559.

B. III. D. 2/7, P. 12, V. 9, A. 2/5, C. 19, L. r. 32, L. tr. 7.

Length of head 2/11, of caudal 2/9, height of body 1/4 of the total length.

Eyes. Diameter 2/7 of length of head, 1 diameter from end of snout, 1½ diameters apart.

Cleft of mouth not extending half way to the orbit; rostral barbels reach to the middle of the orbit, the maxillary to the base of the ventral fin.

Fins. Dorsal commences midway between the anterior margin of the orbit and the posterior extremity of the caudal fin. Pectorals reach the base of the ventrals. Caudal deeply lunate.

Teeth, pharyngeal—crooked, pointed 5/5.

Lateral line,—entirely absent.

Colours—uniform, with a silvery lateral band, which has occasionally a very narrow superior black border.

Hab. India, Burma, and the Nicobars; attaining 3 inches in length.

Genus, RASBORA, *Bleeker*. Pl. xxiii, f. 5.

LEUCISCUS, sp. *Cuv. and Val.*

Abdomen rounded. Pseudobranchiæ present. Cleft of mouth oblique, lower jaw slightly prominent, having one central and a lateral prominence on either side, fitting into corresponding emarginations in the upper jaw. Barbels two (rostral), or none. Eyes with free lids. Pharyngeal teeth 5, 3 or 4, 2/2, 3 or 4, 5. Dorsal fin without osseous ray and few branched ones, inserted posterior to the origin of the ventral but not extending to above the anal, which latter is short. Scales large, or of moderate size. Lateral line concave, continued to the lower half of the caudal fin. Gill rakers short and lanceolate.

Geographical distribution. India, Ceylon and Burma.

SYNOPSIS OF SPECIES.

A. Barbels present, (*Megarasbora*).

1. *Rasbora elanga*, D. 2/7. A. $\frac{2}{5-6}$, L. 1. 40—42. Bengal, Assam and Burma.

B. Barbels absent (*Rasbora*).

2. *Rasbora daniconius*, D. 2/7, A. $\frac{2-3}{5}$, L. 1. 30—32. A black lateral stripe. Continent of India and Ceylon.

3. „ *Neilgherriensis*, D. 2/7, A. 2/5, L. 1. 34. A light lateral band. Neilgherry hills.

4. „ *Buchanani*, D. 2/7, A. 2/5, L. 1. 25-26. No lateral band. From Mysore throughout India, Assam and Burma.

A. Barbels present (*Megarasbora*).

1. RASBORA (*Megarasbora*) ELANGA.

Cyprinus elanga, Ham. Buch., Fish. Ganges, p. 281; *Cuv. and Val., xvi, p. 415.

Leuciscus dystomus, McClell., Ind. Cyp. pp. 292, 406, pl. 56, f. 4.

Rasbora elanga, Günther, Catal. vii, p. 198.

Dahwiee, Hind.

B. III. D. 2/7, P. 15, V. 8-9, A. $\frac{2}{5-6}$, C. 19, L. 1. 40—42,
L. tr. 7/6.

Length of head 1/5, of caudal 1/6, height of body 2/9, of dorsal fin 1/5 of the total length.

Eyes. Diameter from 1/4 to 1/3 of the length of head, 1 diameter from end of snout, 1½ diameters apart.

Head pointed, jaws of equal length, prominences and emarginations well defined. One pair of short rostral barbels.

Fins. Dorsal commences midway between the posterior margin of the orbit and the base of the caudal fin. The pectoral does not reach the ventral. Caudal forked.

Lateral line. Two rows of scales to base of ventral fin.

Colours. Silvery.

Hab. Bengal, Assam and Burma; attaining 8 inches in length.

B. *Barbels absent (Rasbora, as restricted).*

2. RASBORA DANICONIUS.

Cyprinus daniconius, Ham. Buch., Fish. Ganges, pp. 327, 391, pl. 15, f. 89; *Cuv. and Val. xvi, p. 435.

„ *anjana*, Ham. Buch., l. c. pp. 329, 391: *Cuv. and Val., xvi, p. 436.

Leuciscus anjana, daniconius, rasbora, et lateralis, McClell., Ind. Cyp. pp. 292, 405, 407.

„ *dandia*, Cuv. and Val., xvii, p. 309.

„ *Malabaricus, Caverii et flavus*, Jerdon, M. J. L. and S. 1849, pp. 320, 321.

„ *Einthovenii*, Bleeker, Nat. Tyd. Ned. Ind. ii, p. 434.

Rasbora Einthovenii, Bleeker, Prod. Cyp. p. 440, and Atl. Ich. Cyp. p. 120, t. 21, f. 1.

„ *dandia*, Bleeker, Nat. Verh. Holl. Maatsh. Haarl. 1864, Cyp. and Cobot., Ceylon, p. 18, pl. 1, f. 3.

„ *Malabarica*, Day, Mal. Fish. p. 220.

„ *woolaree*, Day, Proc. Zool. Soc. 1867, p. 298.

Opsarius daniconius, Kner, Novara Fische, p. 358.

Rasbora daniconius, Günther, Catal. vii, p. 194.

? *Chondrostoma wattanah*, Sykes, T. Z. S. ii, p. 360, pl. 62, f. 4.

? *Gymnostomus wattanah*, *Günther, l. c. vii, p. 76.

Kokanutchee, Mal. ; *Jilo*, Ooriah, *Danikoni* and *Angjani*, Beng.

B. III. D. 2/7, P. 15, V. 9, A. $\frac{2-3}{5}$, C. 19, L. l. 30-32, Vert. 18/14.

Length of head $\frac{1}{4}$ to $\frac{1}{5}$, of caudal $\frac{1}{5}$, height of body $\frac{1}{4}$ of the total length.

Eyes. Diameter $\frac{1}{3}$ of length of head, 1 diameter from end of snout and apart.

Prominences and emarginations on jaws well defined. Cleft of mouth extends to beneath anterior margin of orbit.

Teeth, pharyngeal—curved, sharp 5, 3, $\frac{2}{2}$, 3, 5.

Fins. Dorsal commences midway between snout and base of caudal, which latter is forked.

Lateral line—at first concave, 2 rows of scales between it and ventral fin.

Colours. A black band, more or less distinct, passes from the eye to the base of the caudal. Sometimes, more especially in Burma, each caudal lobe is tipped with black.

Hab. Continent of India, Ceylon, Burma, and Malay archipelago, attaining 5 inches in length.

3. *RASBORA NEILGHERRIENSIS*. Pl. xxiii, f. 5.

Rasbora Neilgherriensis, Day, Proc. Zool. Soc. 1867, p. 298; Günther, Catal. vii, p. 197.

Ovaree candee, Tam.

B. III. D. 2/7, P. 13, V. 9, A. $\frac{2}{5}$, C. 19, L. l. 34, L. tr. $6\frac{1}{2}/5$.

Length of head $\frac{2}{11}$, of caudal $\frac{2}{11}$, height of body $\frac{1}{5}$ of the total length.

Eyes. Diameter $\frac{1}{5}$ of length of head, $1\frac{1}{4}$ diameters from end of snout and apart.

Cleft of mouth extends to nearly beneath the anterior margin of the orbit. Prominences on sides of jaw scarcely apparent.

Teeth, pharyngeal—5, 3, $\frac{2}{2}$, 3, 5.

Fins. Dorsal commences nearer the snout than the base of the caudal, which latter is slightly lobed.

Lateral line,—2 rows of scales between it and the ventral fin.

Colours. A silvery-leadен band from the eye to the base of the caudal.

Hab. Rivers on and around the Neilgherry Hills, attaining 8 inches in length.

4. RASBORA BUCHANANI.

Cyprinus rasbora, Ham. Buch., pp. 329, 391, pl. 2, f. 90 ; *Cuv. and Val., xvi, p. 438.

Leuciscus rasbora, McClell., Ind. Cyp. pp. 292, 407 ; Cantor, Catal. p. 268 ; Bleeker, Verh. Bat. Gen. xxv, Beng. and Hind. p. 140.

Leuciscus presbyter, Cuv. and Val., xvii, p. 307.

Rasbora Buchanani, Bleeker, Prod. Cyp. p. 451, and Atl. Ich. Cyp. p. 125, pl. 14, f. 3 ; Günther, Catal. vii, p. 196.

Leuciscus xanthogramme et microcephalus, Jerdon, M. J. L. and S. 1849, p. 321.

B. III. D. 2/7, P. 15, V. 9, A. 2/5, C. 19, L. 1. 26—29.

Length of head 1/5, of caudal 1/5, height of dorsal 1/6 of the total length.

Eyes. Diameter 2/7 of length of head, 1 diameter from end of snout, and rather more apart.

Posterior extremity of maxilla extends to under the anterior margin of the orbit. Prominences on jaws well developed.

Fins. Dorsal commences slightly nearer snout than base of caudal.

Lateral line—ceases about 2 scales anterior to the base of the caudal.

Colours,—silvery, a faint streak along the side, caudal usually tipped with black.

Hab. Continent of India, Assam, Burma and Pinang ; attaining 4 or 5 inches in length.

Genus—*ASPIDOPARIA* (Heckel) Bleeker. Pl. xxiii, f. 4.

Morara, Bleeker.

Abdomen rounded. Mouth small, inferior, the lower jaw having a sharp crescentic edge destitute of lip. Barbels absent. Suborbital ring of bones of moderate width or broad. Pharyngeal teeth, 4, 4, 2/2, 4, 4. Dorsal fin without osseous and with rather few branched rays, commencing opposite to or behind the origin of the ventrals, but not extending to above the anal, which latter has a moderate number (10 to 12) of rays. Scales of moderate size. Lateral line concave, and passing along the lower half of the base of the caudal fin.

Geographical distribution. Throughout Bengal, Assam, Bombay and Orissa as far as the Kistna river, and also in Burma.

SYNOPSIS OF SPECIES.

1. *Aspidoparia morar*, D. $\frac{2-3}{7-8}$, A. $\frac{2}{9-10}$, L. 1 38—42. *India generally, except the western coast and south of Kistna; Burma and Assam.*
2. „ *jaya*, D. 2/10, A. 2/8, L. 1. 58. *N. W. Provinces and Assam.*

1. ASPIDOPARIA MORAR. Pl. xxiii, f. 4.

Cyprinus morar, Ham. Buch., pp. 264, 384, pl. 31, f. 5; Gray and Hard., Ill. Ind. Zool. (from H. Buch.); *Cuv. and Val., xvi, p. 459.

Leuciscus morar, McClell., Ind. Cyp., pp. 294, 410; Sykes, P. Z. Soc. 1841, p. 363; Bleeker, Verh. Bat. Gen., xxv, Beng. and Hind. p. 136; *Jerdon, M. J. L. and S., 1849, p. 323.

Morara morar, Bleeker, Prod. Cyp. p. 115.

Aspidoparia sardina, Heckel, Russ. Reis. ii, 3, p. 288; Günther, Catal. vii, p. 285.

Aspidoparia (?) morar, *Günther, Catal. vii, p. 285.

Bayi, Oorlah; *Morari* and *Morar* Beng.; *Nga-hpyen-boo* and *Yen-boung-za*, Burmese; *Amlee*, Deck.; *Chippuah*, *Chelluah*, Hind. (N. W. P.).

B. III. D. $\frac{2-3}{7-8}$, P. 15, V. 8, A. $\frac{2}{9-10}$, C. 19, L. 1. 38—42, L. tr. $5\frac{1}{2}/5$, Vert. 14/21.

Length of head $\frac{2}{9}$, of caudal $\frac{2}{9}$, height of body $\frac{1}{4}$ of the total length.

Eyes. Diameter $\frac{1}{3}$ of length of head, $\frac{3}{4}$ of a diameter from end of snout and apart.

The cheek is covered by a broad suborbital ring of bones.

Fins. Dorsal higher than long, with a concave superior margin; it arises midway between the posterior margin of the orbit and the base of the caudal; pectoral as long as the head.

Lateral line;— $2\frac{1}{2}$ rows of scales between it and the base of the ventral fin.

Colours—silvery.

Hab. Continent of India (except the western coast, and places south of the Kistna river), also Assam and Burma. It attains 6 inches or even more in length. In one specimen, captured in Orissa, the anal fin was entirely absent.

2. ASPIDOPARIA JAYA.

Cyprinus jaya, Ham. Buch., Fish. Ganges, pp. 333, 392; *Cuv. and Val., xvi, p. 439.

Leuciscus margarodes, McClell., Ind. Cyp. pp. 294, 411.

Aspidoparia jaya, *Günther, Catal. vii, p. 286.

Chola, Assam; *Pakruah*, Hind. (N. W. P.).

B. III. D. 2/10, P. 15, V. 8, A. 2/8, C. 21, L. 1. 58, L. tr. 7/10.

Length of head nearly $1/5$, of caudal $1/5$, height of body $1/5$ of the total length.

Eyes. Diameter $2/7$ of length of head, 1 diameter from end of snout, $1\frac{1}{2}$ diameters apart.

Mouth generic, considerably overhung by the snout. Both the preorbital and second suborbital bones touch the upper lip; scarcely above half the cheek is covered by the suborbital ring of bones.

Fins. Dorsal commences nearer to the snout than to the base of the caudal, and above the ventral. Caudal lobes of equal length.

Scales—deciduous.

Lateral line—curving at its termination on to the lower half of the caudal fin.

Colour—silvery, back darkest.

Hab. Hurdwar on the Ganges and Assam. *Perilampus elingulatus*, McClelland, is probably this species, it is said to have come from Simla? and to have D. 9, A. 10, L. 1. 46.

C. *Dorsal fin commencing in the interspace between the ventrals and anal, generally extending to over the latter, which is of moderate length or elongated (7 to 33 branched rays).*

Genus—ROHTEE, Sykes. Pl. xxiii, f. 7.

Osteobrama, Heckel.

? *Smiliogaster*, Bleeker.

Abdomen rounded. Pseudobranchiæ present. Mouth anterior, lips thin. Barbels absent. Pharyngeal teeth, 6 or 5 or 4, 4 or 3, 2 or 3/3 or 2, 3 or 4, 4 or 5 or 6. Dorsal fin short, having an osseous serrated spine, and commencing opposite the interspace between the bases of the

ventral and anal fins, the latter of which has many rays. Scales small. Lateral line passing nearly to the centre of the base of the caudal fin. Gill rakers short.

Geographical distribution. Continent of India, north of the Kistna river, also in Burma.

SYNOPSIS OF SPECIES.

1. *Rohtee cotio*, D. $\frac{3-4}{8}$, A. $\frac{3}{26-29}$, L. l. 71, L. tr. 17/21. *India including the Punjab.*
2. „ *Alfrediana*, D. $\frac{2-3}{8}$, A. $\frac{2-3}{29-33}$, L. l. 42-60. L. tr. $\frac{8-10}{14-17}$,
Throughout Burma, Assam, Bengal and extending to the Tamboodra and Kistna rivers.
3. „ *Vigorsii*, D. $\frac{3}{8}$, A. $\frac{3}{22-23}$, L. l. 75, L. tr. $\frac{18}{19}$, *Deccan and throughout Kistna river.*
4. „ *microlepis*, D. $\frac{3-4}{8}$, A. $\frac{3}{18}$, L. l. 71-73. *Godavery and Burma.*
5. „ *Ogilbii*, D. $\frac{3}{8}$, A. $\frac{3}{13}$, L. l. 55, L. tr. 13/11. *Central India.*

1. ROHTEE COTIO, pl. xxiii, f. 7.

Cyprinus cotio, Ham. Buch., Fish. Ganges, pp. 339, 393, pl. 39, f. 93; *Cuv. and Val., xvii, p. 76.

Abramis cotis, McClell., Ind. Cyp. pp. 288, 388.

Osteobrama cotis, *Heckel, in Russ. Reis. i, p. 1033.

„ *cotio*, Günther, Catal. vii, p. 323.

Koti, Beng.; *Goordah*, Hind. (N. W. P.); *Puttoo*, Punj.

B. III. D. $\frac{3-4}{8}$, P. 13, V. 10, A. $\frac{3}{26-29}$, C. 19, L. l. 71,
L. tr. 15-17/21.

Length of head $\frac{1}{6}$, of caudal $\frac{1}{5}$, height of body about $\frac{1}{3}$ of the total length.

Eyes. Diameter nearly $\frac{1}{3}$ of the length of head, nearly 1 diameter from end of snout. Profile over the nape concave. Jaws, even in front when the mouth is closed.

Fins. Osseous dorsal ray weak and serrated; lower caudal lobe the longer.

Scales—about twelve rows between the lateral line and base of ventral fin, whilst they are undulating and rather irregular.

Colours. Silvery.

2. ROHTEE ALFREDIANA.

Leuciscus Duvaucelii, Cuv. and Val., xvii, p. 77.

„ *Alfredianus*, Cuv. and Val., xvii, p. xvi, (index) pl. 488.

Osteobrama cotis, Blyth, J. A. S. of Bengal, 1860, p. 158.

Osteobrama Alfredianus, Günther, Catal. vii, p. 324.

Goonta, Beng.

B. III. D. $\frac{2-3}{8}$, P. 13, V. 10, A. $\frac{2-3}{29-33}$, C. 19, L. 1. 42-60,

L. tr. $\frac{8-10}{14-17}$.

The following specimens are amongst those collected by myself.

D. 2/8, A. 2/29, L. 1. 48, L. tr. 10/16 from Pegu.

D. 2/8, A. 2/33, L. 1. 50, L. tr. 12/16, „ Balasore.

D. 3/8, A. 2/29, L. 1. 56, L. tr. 10/16, „ „

D. 2/8, A. 2/33, L. 1. 60, L. tr. 12/17, „ „

D. 2/8, A. 2/30, L. 1. 45, L. tr. 8/14, „ Rangoon.

D. 3/8, A. 2/30, L. 1. 51, L. tr. 9/? „ Mandalay.

D. 3/8, A. 2/29, L. 1. 42, L. tr. 9/14, „ Moulmein.

D. 3/8, A. 3/29, L. 1. 51, L. tr. 10/14, „ „

Length of head $\frac{1}{6}$, of pectoral $\frac{2}{13}$, of caudal $\frac{1}{5}$, height of body $\frac{4}{13}$ of the total length.

Eyes. Diameter $\frac{2}{5}$ of length of head, $\frac{1}{2}$ diameter from end of snout, 1 diameter apart.

Profile over nape concave, from thence a great rise to the base of the dorsal fin. Upper jaw slightly the longest, snout very obtuse and elevated over the nostrils.

Fins. Dorsal commences midway between the snout and the base of the caudal, its osseous ray weak and serrated. Caudal deeply lobed, the lower the longest.

Lateral line,—very strongly marked in the first few scales, the rows below the lateral line regular and horizontal.

Colour. Silvery.

Hab. Orissa, Bengal, Assam and Burma, attaining 6 inches or more in length.

3. ROHTEE VIGORSII.

Sykes, Trans. Zool. Soc. 1841, p. 36, pl. 63, f. 3; Day, Proc. Zool. Soc. 1869, p. 379.

Osteobrama rapax, Günther, Catal. vii, p. 323.

Gollund, Ooriah; *Khira*, Tel.

B. III. D. $\frac{3}{8}$, P. 19, V. 10, A. $\frac{3}{22-23}$, C. 19, L. 1. 75, L. tr. $\frac{18}{19}$.

Length of head $\frac{1}{5}$, of pectoral $\frac{1}{7}$, of caudal $\frac{1}{4}$, height of body $\frac{1}{3}$, of dorsal fin $\frac{1}{6}$ of the total length.

Eyes. Diameter $\frac{1}{3}$ of length of head, 1 diameter from end of snout and apart.

Dorsal profile elevated, a slight concavity from the snout to over the nape. Mouth anterior, the lower jaw being somewhat longer than the upper, whilst posteriorly the cleft of the mouth extends to below the anterior margin of the orbit. Preorbital nearly as high as broad, suborbitals very narrow.

Teeth, pharyngeal—crooked, 5, 4, $2\frac{1}{2}$, 4, 5.

Gill rakers short and rather widely separated.

Fins. Dorsal commences midway between the base of the ventral and anal, its spine strong and deeply denticulated, its osseous portion not so long as the head. Caudal deeply forked.

Lateral line—most strongly developed in the first few scales. The largest scales are near the lateral line.

Colours. Greenish superiorly, silvery beneath. The caudal fin slightly stained with grey.

Hab. Deccan and Kistna river to its termination; it attains eight inches in length.

4. ROHTEE MICROLEPIS.

? *Leuciscus Belangeri*, Cuv. and Val., xvii, p. 99.

Systemus microlepis, Blyth, J. A. S. of Bengal, 1858, p. 289, and 1860, p. 158.

Rohtee Blythii, *Bleeker, Prod. Cyp. p. 281.

? *Smiliogaster Belangeri*, *Bleeker, Atl. Ich. Cyp. p. 33; *Günther, Catal. vii, p. 328.

Osteobrama microlepis, *Günther, Catal. vii, p. 325.

B. III. D. $\frac{3-4}{8}$, P. 17, V. 9, A. $\frac{3}{18}$, C. 17, L. 1. 71-73, L. tr. $\frac{18}{22}$.

Length of head $2/11$, of caudal $1/4$, height of body $1/3$ of the total length.

Eyes. Diameter $1/3$ of length of head, $3/4$ of a diameter from end of snout, $1\frac{1}{2}$ diameters apart.

Lower jaw slightly the shorter. Dorsal profile much elevated, a slight concavity over the nape. Preorbital of moderate width, the rest of the suborbital ring narrow.

Teeth, pharyngeal—4, 3, $2/2$, 3, 4, serrated on their edges, the two largest of the anterior row molarform.

Gill rakers rudimentary.

Fins. Dorsal commences slightly nearer the base of the caudal than the end of the snout, its osseous ray is strong and serrated in its upper two-thirds, the bony portion being as long as the head. Caudal deeply lobed, the lower slightly the longest.

Colours. Silvery, back greyish, and the Indian variety is partially banded, more especially in the young. A dark streak from the shoulder to the base of the pectoral fin.

Hab. The Godavery river, and throughout Burma, but the specimens from the latter locality are darker in colour and want the vertical bands. It attains 15 inches and more in length. Although Valenciennes who described *Leuciscus Belangeri*, and Bleeker and Günther, who have not seen it, have considered this species the type of a genus (*Smiliogaster*), which is said to have a compressed abdomen, "mais sans aucune dentelure, comme celles des clupées" it appears to me most probable that the typical specimens were badly preserved ones of *Rohtee microlepis*.

5. ROHTEE OGILBII.

Sykes, Trans. Zool. Soc. 1841, p. 64, pl. 63, f. 2.

Osteobrama Ogilbii, Heckel, in Russ. Reis. i. p. 1033; Günther, Catal. vii, p. 324

B. III. D. $3/8$, P. 15, V. 10, A. $3/13$, C. 20, L. l. 55, L. tr. $13/11$.

Length of head $1/7$, of pectoral $1/7$, of caudal $1/4$, height of body $1/3$, of dorsal fin $1/4$ of the total length.

Eyes. Diameter nearly $1/2$ of length of head, $1/2$ a diameter from end of snout, above 1 diameter apart.

Dorsal and abdominal profiles about equally convex. Cleft of

MAP OF THE EASTERN AND NORTHERN FRONTIERS OF SIKKIM

Shewing the route of Captain Elwes and M^r. Blanford in 1870

Scale 1 Inch = 8 Miles.

Route marked thus ++++++



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